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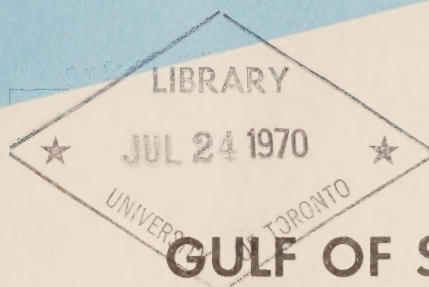


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Government
Publications

DEPARTMENT OF ENERGY, MINES AND RESOURCES
Ottawa



GULF OF ST. LAWRENCE

November 14 to November 24, 1968

No. 11

1969 Data Record Series

Canadian Oceanographic Data Centre

Programmed by the
Canadian Committee on Oceanography

1969

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GULF OF ST. LAWRENCE

November 14 to November 24, 1968

CODC Reference: 10-68-004

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DEPARTMENT OF ENERGY, MINES AND RESOURCES

Canadian Oceanographic Data Centre

615 Booth St., Ottawa, Canada

Programmed by the Canadian Committee on Oceanography

DEPARTMENT OF ENERGY, MINES AND RESOURCES
and
FISHERIES RESEARCH BOARD OF CANADA

GULF OF ST. LAWRENCE

Ship: CNAV "Sackville"
Local cruise designation: BI 6268
CODC cruise reference no: 10-68-004
Cruise period: November 14 - November 24, 1968
Officer-in-Charge: T.R. Foote
Observers: E.F. MacDonald
E.A. Verge
W.G. Warshick
A.E. Swyers
D. Strong

ATLANTIC OCEANOGRAPHIC LABORATORY
and
MARINE ECOLOGY LABORATORY

Bedford Institute, Dartmouth, N.S.

SECTION I

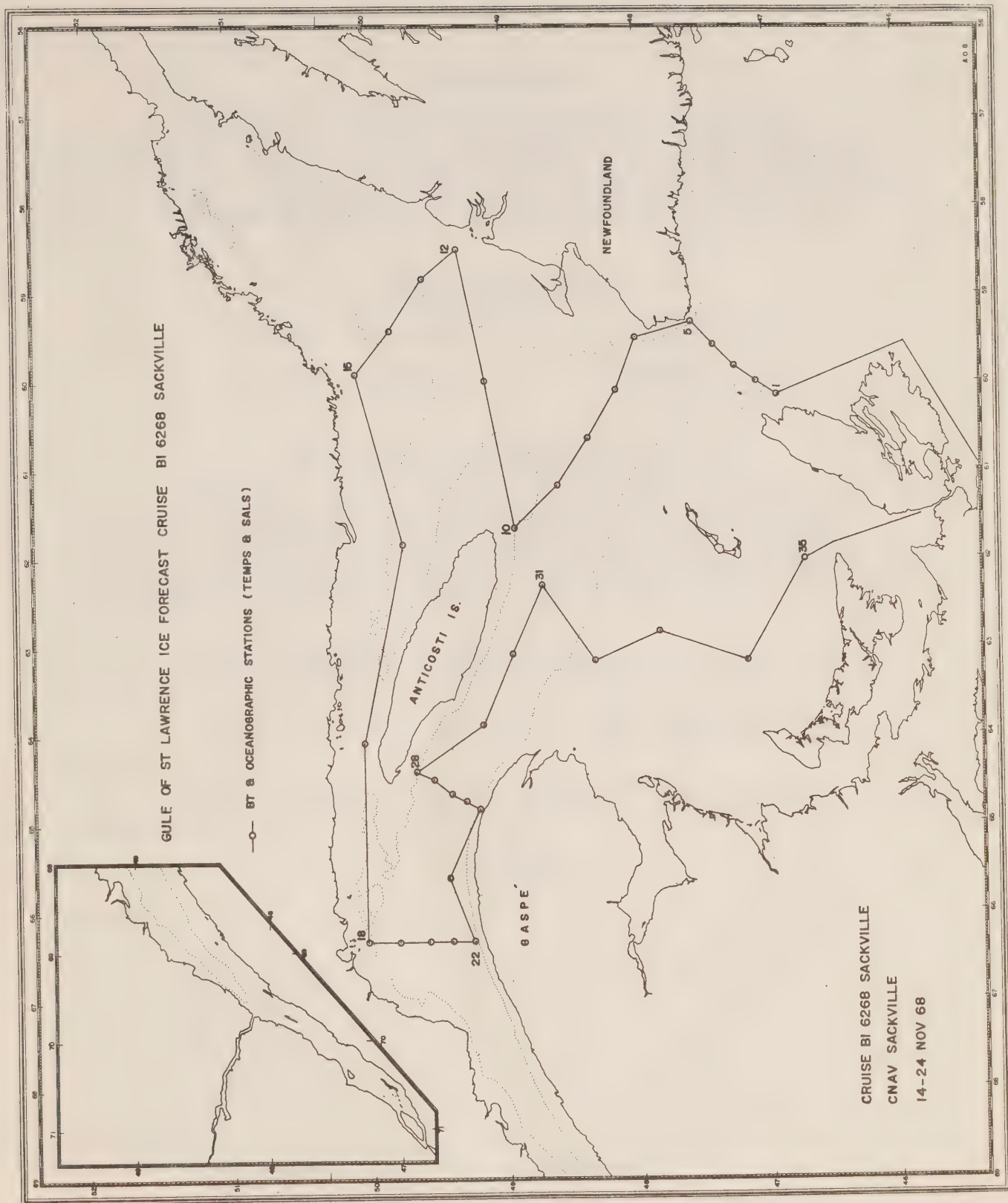
Description of data collection procedures

"SACKVILLE"

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Fisheries Research Board





INTRODUCTION

The purpose of the cruise was to sample temperatures and salinities in the upper 250 metres at representative stations throughout the Gulf of St. Lawrence, and thus to provide temperature and salinity data with which the Ice Forecast Central office of the Department of Transport prepare their ice forecast for the 1968-69 winter season in the Gulf.

EXTRACT OF CRUISE LOG

Depart	Dartmouth, N.S.	-	14 November 1968
Arrive	Dartmouth, N.S.		24 November 1968

OBSERVATIONAL AND LABORATORY PROCEDURES

Temperature and salinity data were collected in single casts at 35 stations throughout the Gulf of St. Lawrence. Standard sampling procedures to depths were used with an additional depth at 40 metres, as requested by Ice Central. Two protected Richter & Wiese thermometers were used on Knudsen-type sampling bottles. Bathythermograph lowerings were made just prior to the oceanographic casts.

Water samples were measured for salinity, on board, by the conductivity bridge method (Auto Lab Salinometer).

Weather observations were made at each oceanographic station by the ship's officers.

Bathythermograph slides and records were forwarded to the Canadian Oceanographic Data Centre for processing.

PERSONNEL

At sea:

T.R. Foote	Officer-in-Charge
E.F. MacDonald	
E.A. Verge	
W.G. Warshick	
A.E. Swyers	
D. Strong	

Data Analyses

Compilation of data:	T.R. Foote
Salinity determinations	E.F. MacDonald
BT processing	CODC

SECTION II

Description of the machine-generated data record

INTRODUCTION

This section applies to the machine processing phase of the data reduction and computation.

The oceanographic data previously recorded on CODC data summary forms, a sample of which is shown on the next page, are transferred to punch-cards for subsequent electronic data processing on an IBM 1620 computer, using CODC's OCEANS II program. In addition to computing routine derived quantities, the program carries out unit and format conversions, range checks, plausibility tests, internal editing, and if required, interpolation at standard oceanographic depths. When interpolations are carried out, additional derived values are computed.

After the data have been processed, the data record is prepared using an IBM 1401 computer configuration with the OCEAN REPORT III program, which provides for pre-edited high speed print-out on continuous direct-image masters. These masters subsequently yield the required volume of copies for distribution.

Provision has been made to enter an "estimate of precision" for each observed variable selected for interpolation at standard oceanographic depths. The precision depends on the instrument and/or technique used to determine the variable. A standard precision stated as a **standard deviation** (σ) can be determined for each instrument or technique under routine field conditions by making duplicate determinations of the variables for a homogeneous sample of sea water. These standard deviations are given for each cruise under "GENERAL INFORMATION" in section III of the data record.

The **measurement error estimate** of a specific observation in this data record, is stated as a multiple of the standard deviation derived as above, and entered in a column immediately to the right of the reported variable. In order to distinguish it from an additional decimal digit, the measurement error estimate is recorded alphabetically, (i.e., $1\sigma = A$, $2\sigma = B$, etc.; in this data record "A" is suppressed).

An option is provided with respect to the measurement of the salinity variable. If observed to three decimal digits, the last digit takes the place of the measurement error estimate.

In the past, a number of methods for both manual and machine interpolation have been developed. Studies and comparisons of the several methods have shown that no single method is universally acceptable. The manual methods are the most elaborate and flexible, but often require subjective decisions. In machine interpolation, all the present methods fail to yield acceptable results under some circumstances. Hence, it is considered necessary to qualify interpolated values by stating an "**interpolation error estimate**" derived from the particular interpolation formula used. There are two purposes in stating the error estimates; **first**, to give an indication of the quality of the interpolated data; **second**, to allow the oceanographer to redesign his observational procedures in order to reduce interpolation errors in future observations.

The interpolation scheme chosen for the OCEANS II program consists of a combination of two 3-point interpolations using the Lagrangian interpolation polynomial, as recommended by Rattray (1962). A parabola is fitted through three values of a given variable (T , S , O_2) considered as a function of depth. The two interpolation parabolas require a total of four points (observed depths). The middle points are common to both parabolas. The average of the two values obtained from the parabolas at standard depth is taken as the interpolated value, and a function of their difference as an estimate of the interpolation error.

This function combined with the "**measurement error estimate**" comprises the "**combined measurement and interpolation error estimate**". It is expressed as a multiple of the standard deviation of measurement (σ) under normal routine field conditions by:

CANADIAN OCEANOGRAPHIC DATA CENTRE

1 IDENT. CODE		2 LATITUDE (N = +) DEG. MIN. 1/10		3 LONGITUDE (W = +) DEG. MIN. 1/10		5 DATE YEAR MONTH DAY		6 TIME HOURS 1/10 G.M.T.		7 DEPTH — TO BOTTOM		9 DEPTHS OBS'D.		VESSEL									
COUNTRY INST.		1/10		1/10		YEAR MONTH DAY		HOURS 1/10 G.M.T.		— TO BOTTOM		OBS'D.		ENTERED BY CHECKED BY									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19					

[illegible]

$$\frac{\sigma_i}{\sigma} = \left\{ \frac{(\Delta V_i)^2}{\sigma^2} + \sum_{n=j-2}^{j+1} (\gamma_n)^2 \left(\frac{\sigma_n}{\sigma} \right)^2 \right\}^{1/2}, \text{ where}$$

σ = Standard deviation of the combined error estimates at standard oceanographic depth,
 ΔV_i = the interpolation error estimate of variable "V" at standard oceanographic depth = $1/3 (\bar{V}_{i_1} - V_{i_2})$
 γ = Interpolation polynomial coefficient.

Z_j = Observed depth.

Z_i = Standard oceanographic depth, such that: $Z_{j-2} < Z_{j-1} < Z_i < Z_j < Z_{j+1}$

The integral part of the fraction $\frac{\sigma_i}{\sigma}$, if ≥ 2 , is reported in this Data Record following the interpolated variable. It represents the combined measurement and interpolation error estimate. In order to distinguish it from an additional decimal digit, it is recorded alphabetically (e.g.: 2 as "B", 3 as "C", etc.).

With respect to the interpolated value of the salinity variable if reported to three decimal digits, the interpolation error estimate is given only when $\frac{\sigma_i}{\sigma} \geq 2$ (the salinity is then recorded to two decimal places). If less than 2, the mean obtained from the two interpolation parabolas is reported to three decimal places.

EXPLANATION OF DATA RECORD HEADINGS

MASTER HEADINGS

(1) C-REF-NO	(6) YR	(11) DEPTH	(16) WAVES 1	(21) AIR T	(26) VIS
(2) CONS. NO	(7) MONTH	(12) MXSAMPD	(17) WAVES 2	(22) WET B	(27) STN
(3) LAT	(8) DAY	(13) NO. DPTH	(18) WND-DIR	(23) ww-CODE	
(4) LON	(9) HR	(14) W-COLOR	(19) WND-FCE	(24) CLD-TPE	
(5) MARSD SQ	(10) C/I	(15) W-TRNSP	(20) BARO	(25) CLD-AMT	(28) HW

(1) CRUISE REFERENCE NUMBER:

Assigned by the Institute. Commences with 001 at the beginning of each year (effective Jan. 1, 1963). Prior to that date the CRN was a number designated by CODC.

(2) CONSECUTIVE NUMBER:

Indicates the chronological order in which the stations were occupied.

(3) LATITUDE:

Indicate the position of the platform at the time of observation.

(4) LONGITUDE:

(5) MARSDEN SQUARE: Designates the geographic area code of the observation (see Marsden square chart).

(6) YEAR:

(7) MONTH:

(8) DAY:

(9) HOUR:

The time (Greenwich Mean Time) at which the surface environmental data were recorded. It is reported to tenths of hours (Table 1).
If an "X" precedes the value for HOUR, (prior to Jan. 1, 1963) it indicates that the reported time is doubtful.

(10) COUNTRY/INSTITUTE:

The International Geophysical Year (IGY) Country Code/Institute Code - see Table 11.

(11) DEPTH:

The sounding reported in metres. If corrected, this is stated in the "GENERAL INFORMATION" chapter of section III. Charted depths are preceded by the letter "C".

(12) MAXIMUM

SAMPLING DEPTH: A code to indicate the deepest sampling depth (used for high speed sorting).

00 m - 50 m = 00

51 m - 150 m = 01

151 m - 250 m = 02

etc.

- (13) NUMBER OF DEPTHS: The number of levels observed (this is entered to initiate a computer safety check, guarding against the loss of punch-cards).
- (14) WATER COLOUR: A code based on the percentage of yellow (see table 2 and Note under FIELD "15" below).
- (15) WATER TRANSPARENCY: The depth in metres at which a Secchi disc (white disc, 30 cm. in diameter) just disappears from view, or the optical density expressed in percentage;
- NOTE: The "GENERAL INFORMATION" chapter in section III of the data record will state which method was used.
- (16) WAVES 1
($d_w d_w P_w H_w$ -code): The direction, period and height of the **wind-propagated** wave system. (See Tables 3, 4 and 5). Ref: World Meteorological Organization Codes 0885, 3155, 1555.
- (17) WAVES 2
($d_w d_w P_w H_w$ -code): The direction, period and height of the predominant **non-wind-propagated** wave system. (See Tables 3, 4 and 5). Ref: World Meteorological Organization Codes 0885, 3155, 1555.
- (18) WIND DIRECTION: The true direction to the nearest 10 degrees from which the wind is blowing (wind direction 990 means:—wind variable or direction unknown).
- (19) WIND FORCE (WIND-FCE): Beaufort notation (See Table 6).
- WIND SPEED (WIND-SPD): Anemometer reading reported in metres per second. Instrument height reported in "GENERAL INFORMATION" chapter of section III.
- (20) BAROMETER: The barometric pressure reported in millibars: the "GENERAL INFORMATION" chapter in Section III of the data record will state the type of instrument used.
- (21) AIR TEMPERATURE: In degrees Celsius.
- (22) WET BULB: In degrees Celsius.
- (23) ww CODE: Present Weather Code (See Table 7). Ref: WMO Code 4677
- (24) CLOUD TYPE: The type of predominating clouds (See Table 8). Ref: WMO Code 0500.
- (25) CLOUD AMOUNT: The sky coverage in eighths (See Table 9) Ref: WMO Code 2700
- (26) VISIBILITY: Visibility at the surface (See Table 10). Ref: WMO Code 4300.
- (27) STATION: A station reference number, assigned by the institute prior to, or during the survey.

OBSERVED DATA HEADINGS

(1) GMT	(2) DEPTH	(3) TEMP	(4) SAL	(5) OXYGEN	(6) SGMT
(7) SOUND	(8) PO_4	(9) -P-	(10) NO_2	(11) NO_3	(12) SiO_2
				(13) pH.	

NOTE: Headings (1) to (7) will always be present. Headings (8) to (13) appear only when one or more additional chemical entries were made.

(1) G.M.T.: The Greenwich Mean Time of (in-situ) thermometer inversion and sea water sample collection.

When a multiple cast was initiated prior to and continued after midnight, the times indicated are uninterrupted by the change of day and appear beyond 24.0 hours. This will be accompanied by a statement: "MULTIPLE CAST CONTINUED NEXT DAY", which is printed following the last level of observed values.

(2) DEPTH: The depth in metres at the reversal time of deepest cast.

(3) TEMPERATURE: Temperatures from deepsea reversing thermometers, read to 0.01° C. Surface temperature measurement procedures are described in the chapter "OBSERVATION PROCEDURES" of section I, and/or the "GENERAL INFORMATION" chapter of section III. An alphabetical character following the temperature value represents the measurement error estimate referred to in the INTRODUCTION to this section.

(4) SALINITY: Salinity as defined by: $S = 0.03 + 1.805 C1\%$, reported in:
 a. 1/100 parts per 1000, or
 b. 1/1000 parts per 1000.

In case a: an alphabetical character following the value is the measurement error estimate as referred to under (3).

In case b: no error estimate indication is provided for, but an additional decimal digit takes its place.

(5) OXYGEN: The concentration of dissolved oxygen expressed in millilitres per litre to 2 decimal places. An alphabetical character following the value is the measurement error estimate as referred to under (3).

(6) SIGMA-T: The specific gravity anomaly as defined by: $(\text{Specific gravity} - 1) \times 10^3$ (e.g., σ_t reported as 2456, reads 24.56, and corresponds to a specific gravity of 1.02456).

(7) SOUND: The sound velocity is reported in m/sec. to 1 decimal place (e.g., 1437.9 m/sec.). The computation is carried out using Wilson's formula (1960), expressed in terms of temperature, salinity and total pressure.

- (8) PO_4 Phosphate-Phosphorus reported to hundredths of microgram-atoms per litre.
- (9) -P- Total Phosphorus reported to hundredths of microgram-atoms per litre.
- (10) NO_2 Nitrite-Nitrogen reported to hundredths of microgram-atoms per litre – No dissolved nitrogen included –
- (11) NO_3 Nitrate-Nitrogen reported to tenths of microgram-atoms per litre.
- (12) SiO_2 Silicate-Silicon reported in whole microgram-atoms per litre.
- (13) pH The pH value.

NOTE: "TRC" (trace) is reported when a chemical entry has a value less than the standard deviation of measurement for that particular variable.

INTERPOLATED DATA HEADINGS

(1) <i>DEPTH</i>	(2) <i>TEMP</i>	(3) <i>SAL</i>	(4) <i>OXYGEN</i>	(5) <i>SGMT</i>	(6) <i>SOUND</i>
(7) <i>DELTA-D</i>	(8) <i>POT-EN</i>	(9) <i>SVA</i>			

- (1) DEPTH: Standard Oceanographic Depth in whole metres, as well as additional depths: 125, 175, 225, 3500, 4500, 5500, 6500, 7500, 8500, 9500.
- (2) TEMPERATURE: Interpolated value at standard depth, followed by the combined measurement and interpolation error estimate (see "INTRODUCTION" to section II of the data record).
- (3) SALINITY:
- A. The reported salinity values are measured to three decimal places.
 - (i) the interpolation error estimate is less than twice the standard deviation of measurement
 - the interpolated value is reported to three decimal places (e.g., 30.139).
 - (ii) the interpolation error estimate is equal to or greater than twice the standard deviation of measurement.
 - the interpolated value is reported to two decimal places, and followed by the interpolation error estimate (e.g., 29.23 C).
 - B. The reported salinity values are measured to two decimal places and followed by the measurement error estimate.
 - the interpolated value is reported to two decimal places, and followed by the combined measurement and interpolation error estimate (e.g., 30.59 B).
- (4) OXYGEN: Interpolated value at standard depth, followed by the combined measurement and interpolation error estimate (see "Introduction" to section II of the data record).

- (5) SIGMA-T: Computed from temperature and salinity values at standard oceanographic depth.
- (6) SOUND VELOCITY: Computed from temperature, salinity and total pressure values at standard oceanographic depth, using Wilson's formula (1960).
- (7) DELTA-D: The geo-potential anomaly as defined by:
- $$\Delta D = \int_0^P \delta \rho dp$$
- ΔD is expressed in dynamic metres (10^5 ergs/gram) and recorded to three decimal places (e.g., 2.345 dyn. metres).
- (8) POTENTIAL ENERGY ANOMALY: The Potential energy anomaly χ as defined by:
- $$\chi = \frac{1}{g} \int_0^P \rho \delta dp = \int_0^Z \rho p \delta dz$$
- χ is expressed in units of 10^8 ergs/cm² and recorded to two decimal places (e.g., 116.44).
- (9) SPECIFIC VOLUME ANOMALY: The specific volume anomaly as defined by:
- $$\delta = \alpha - \alpha_{35.0.P}$$
- δ is expressed in ml/gr, and conventionally reported as $10^6 \delta$, to one decimal place (i.e., δ reported as 1234, reads 123.4, and corresponds to a specific volume anomaly of 0.001234 ml/gr.).

SPECIAL CHARACTERS

‡ (Record mark): is used to indicate inconsistencies which are printed in an area below the "Observed Data". A corresponding record mark at the extreme left hand side indicates the level at which the inconsistency occurs

* (Asterisk): this character may occur in the **interpolated** portion of the data record. It is printed at the extreme left hand side of the page, when three or more standard depth levels fall within any one **observed depth interval**. The **third**, and all consequent levels are preceded by the asterisk to indicate that more than **two** machine interpolations were carried out, utilizing the same set of interpolation parabolas. The asterisk will also appear when the last standard depth is an extrapolation and there are at least two interpolations between the last two observed depths.

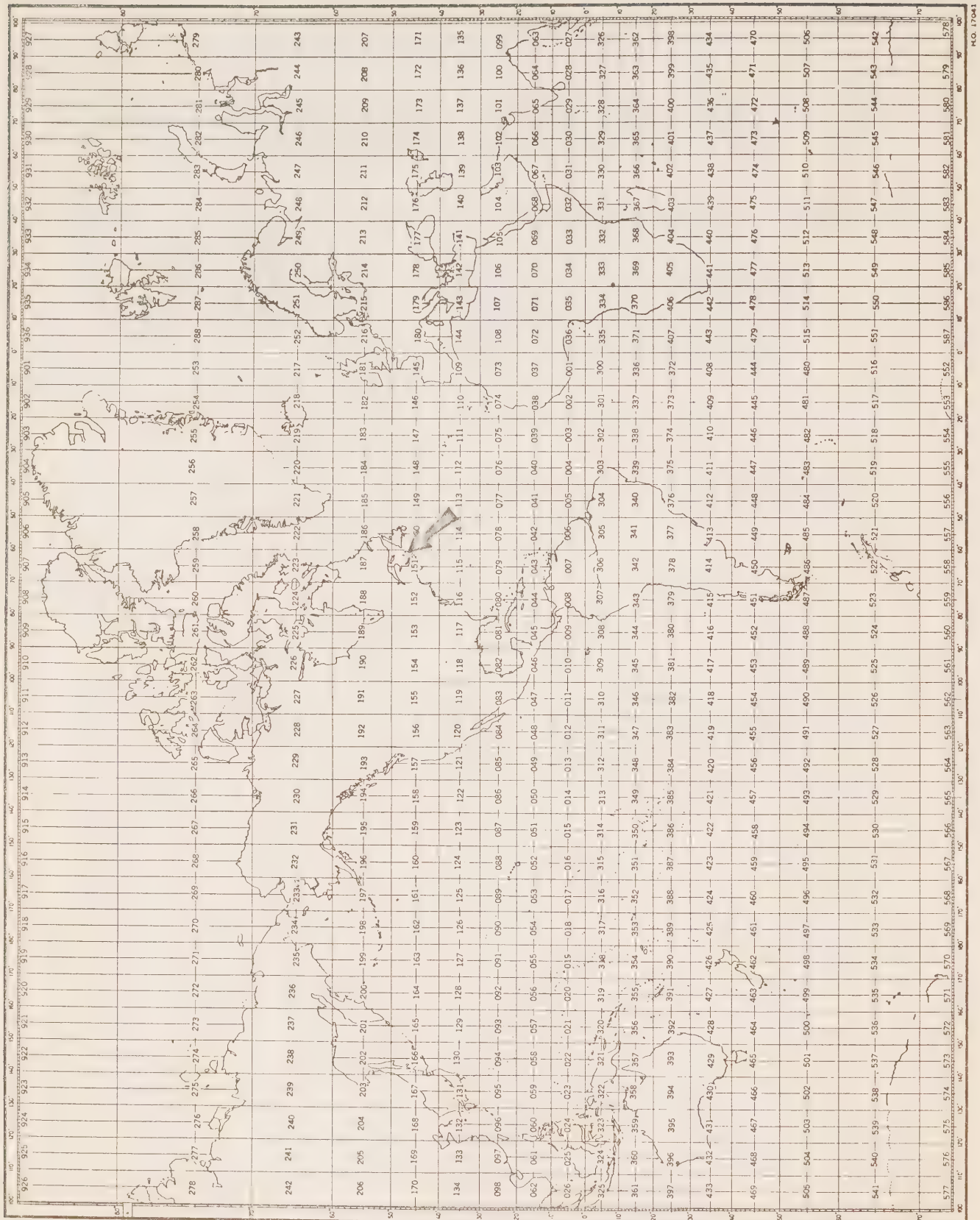


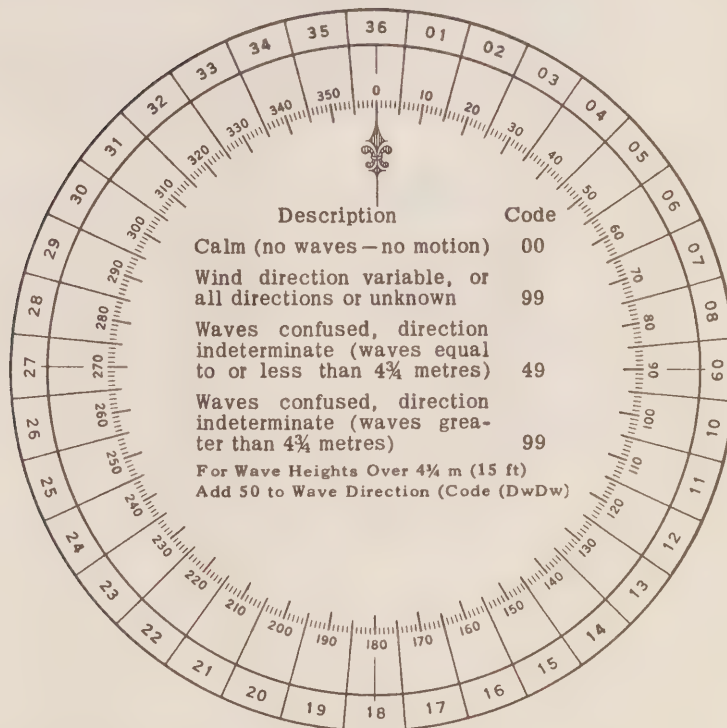
Table 1
CONVERSION
MINUTES TO $\frac{1}{10}$ HRS.

Minutes	Tenths Hrs.
00-03	0
04-08	1
09-15	2
16-20	3
21-27	4
28-32	5
33-39	6
40-44	7
45-51	8
52-56	9
57-59	0 (next HR.)

Table 2
WATER COLOR CODE
Based on Percentage Yellow

Code:	Description
00	Deep Blue
10	Blue
20	Greenish Blue
30	Bluish Green
40	Green
50	Light Green
60	Yellowish Green
70	Yellow Green
80	Green Yellow
90	Greenish Yellow
99	Yellow

Table 3. DIRECTION CODE (dd)



NOTE:

Always use the true direction from which the wind is blowing, or the direction from which Waves I (sea), or Waves II (swell) come.

Table 4. PERIOD OF THE WAVES (P_w)
(Measure to the Nearest Second)

Code:	Period in Seconds:	Code:	Period in Seconds:
2	5 sec. or less	8	16 or 17 sec.
3	6 or 7 sec.	9	18 or 19 sec.
4	8 or 9 sec.	0	20 or 21 sec.
5	10 or 11 sec.	1	Over 21 sec.
6	12 or 13 sec.	X	Calm, or period not determined
7	14 or 15 sec.		

Table 5. HEIGHT OF THE WAVES (H_w)

- The average value of the wave height (vertical distance between trough and crest) is reported, as obtained from the larger well formed waves of the wave system being observed.
- Each code figure provides for reporting a range of heights. For example: 1 = $\frac{1}{4}$ m (1 ft) to $\frac{3}{4}$ m ($2\frac{1}{2}$ ft); 5 = $2\frac{1}{4}$ m (7 ft) to $2\frac{3}{4}$ m (9 ft); 9 = $4\frac{1}{4}$ m ($13\frac{1}{2}$ ft) to $4\frac{3}{4}$ m (15 ft), etc.
- If a wave height comes exactly midway between the heights corresponding to two code figures, the lower code figure is reported; e.g. a height of $2\frac{3}{4}$ m is reported by code figure 5.

Code			Code
0	Less than ¼ m (1 ft)		0 5 m (16 ft)
1	½ m (1½ ft)		1 5½ m (17½ ft)
2	1 m (3 ft)		2 6 m (19 ft)
3	1½ m (5 ft)	Add	3 6½ m (21 ft)
4	2 m (6½ ft)	50	4 7 m (22½ ft)
5	2½ m (8 ft)	to	5 7½ m (24 ft)
6	3 m (9½ ft)	Dw Dw	6 8 m (25½ ft)
7	3½ m (11 ft)		7 8½ m (27 ft)
8	4 m (13 ft)		8 9 m (29 ft)
9	4½ m (14 ft)		9 9½ m (30½ ft) or more
x	Height not determined		

Table 6. WIND FORCE CODE

The Beaufort force of the wind is estimated from the appearance of the sea surface, according to the table below. This table is only intended as a guide to show roughly what may be expected on the open sea, remote from land. Factors which must be taken into account are the "lag" effect between the wind increasing and the sea getting up; and the influence of "fetch", depth, swell, heavy rain and tide effect on the appearance of the sea. Estimation of the wind force by this method becomes unreliable in shallow water or when close inshore, owing to the tidal effect and the shelter provided by the land.

Code	Appearance of sea if fetch and duration of the blow have been sufficient to develop the sea fully	Description
00	Sea like a mirror	Calm
01	Ripples with the appearance of scales are formed, but without foam crests.	Light Air
02	Small wavelets; crests have a glassy appearance and do not break.	Light Breeze
03	Large wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses.	Gentle Breeze
04	Small waves, becoming longer; fairly frequent white horses.	Moderate breeze
05	Moderate waves; many white horses are formed (chance of some spray)	Fresh Breeze
06	Large waves; white foam crests everywhere (probably some spray)	Strong Breeze
07	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	Near Gale
08	Moderately high waves; edges of crests begin to break into the spindrift; foam is blown in well-marked streaks along the direction of the wind.	Gale
09	High waves; dense streaks of foam along wind; crests begin to topple, tumble and roll over; spray may affect visibility.	Strong Gale
10	Very high waves with long overhanging crests; foam in great patches blown in dense white streaks along wind; sea surface takes a white appearance; tumbling becomes heavy and shock-like; visibility affected.	Storm
11	Exceptionally high waves (medium sized ships may be lost to view behind waves); sea covered with long white patches of foam lying along the wind; everywhere edges of crests are blown into froth; visibility affected.	Violent Storm
12	Air is filled with foam and spray; sea completely white with driving spray; visibility seriously affected.	Hurricane

Table 7. PRESENT WEATHER

W.W. CODE

NO PRECIPITATION ON STATION AT TIME OF OBSERVATION

Code figure ww			
No meteors except photometeors	00	Cloud development not observed or not observable	characteristic change of the state of sky during the past hour
	01	Clouds generally dissolving or becoming less developed	
	02	State of sky on the whole unchanged	
	03	Clouds generally forming or developing	
Haze, dust, sand or smoke	04	Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes	
	05	Haze	
	06	Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation	
	07	Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen	
	08	Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no dustorm or sandstorm	
	09	Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour	
	10	Mist	
	11	Patches of } shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 metres on land or 10 metres at sea	
	12		More of less } continuous
	13	Lightning visible, no thunder heard	
	14	Precipitation within sight, not reaching the ground or the surface of the sea	
	15	Precipitation within sight, reaching the ground or the surface of the sea, but distant (i.e. estimated to be more than 5 km) from the station	
	16	Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station	
	17	Thunderstorm, but no precepitation at the time of observation	
	18	Squalls	} at or within sight of the station during the preceding hour or at the time of observation
	19	Funnel clouds	
ww = 20 - 29			
	20	Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not at the time of observation	
	21	Drizzle (not freezing) or snow grains	} not falling as shower(s)
	22	Rain (not freezing)	
	23	Snow	
	24	Rain and snow or ice pellets, type (a)	
	25	Freezing drizzle or freezing rain	
	26	Shower (s) of rain	
	27	Shower (s) of snow, or of rain and snow	
	28	Shower (s) of hail, or of rain and hail	
	29	Fog or ice fog	
	29	Thunderstorm (with or without precipitation)	
ww = 30 - 39			
	30	Duststorm, sandstorm, drifting or blowing snow	
	31	Slight or moderate duststorm or sandstorm	} - has decreased during the preceding hour - no appreciable change during the preceding hour - has begun or has increased during the preceding hour
	32		
	33	Severe duststorm or sandstorm	} - has decreased during the preceding hour - no appreciable change during the preceding hour - has begun or has increased during the preceding hour
	34		
	35		
	36	Slight or moderate blowing snow	} generally low (below eye level)
	37	Heavy drifting snow	
	38	Slight or moderate blowing snow	} generally high (above eye level)
	39	Heavy blowing snow	
ww = 40 - 49			
	40	Fog or ice fog at the time of observation	
	41	Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer	
	42	Fog or ice fog in patches	
	43	Fog or ice fog, sky visible	} has become thinner during the preceding hour
	44	Fog or ice fog, sky invisible	
	45	Fog or ice fog, sky visible	} no appreciable change during the preceding hour
	46	Fog or ice fog, sky invisible	
	47	Fog or ice fog, sky visible	} has begun or has become thicker during the preceding hour
	48	Fog or ice fog, sky invisible	
	49	Fog, depositing rime, sky visible	
	49	Fog, depositing rime, sky invisible	

NO PRECIPITATION ON STATION AT TIME OF OBSERVATION

PRECIPITATION ON STATION AT TIME OF OBSERVATION

ww = 50 - 59 Drizzle

50	Drizzle, not freezing, intermittent	} slight at time of observation
51	Drizzle, not freezing, continuous	
52	Drizzle, not freezing, intermittent	} moderate at time of observation
53	Drizzle, not freezing, continuous	
54	Drizzle, not freezing, intermittent	} heavy (dense) at time of observation
55	Drizzle, not freezing, continuous	
56	Drizzle, freezing, slight	
57	Drizzle, freezing, moderate or heavy (dense)	
58	Drizzle and rain, slight	
59	Drizzle and rain, moderate or heavy	

ww = 60 - 69 Rain

60	Rain, not freezing, intermittent	} slight at time of observation
61	Rain, not freezing, continuous	
62	Rain, not freezing, intermittent	} moderate at time of observation
63	Rain, not freezing, continuous	
64	Rain, not freezing, intermittent	} heavy at time of observation
65	Rain, not freezing, continuous	
66	Rain, freezing, slight	
67	Rain, freezing, moderate or heavy	
68	Rain or drizzle and snow, slight	
69	Rain or drizzle and snow, moderate or heavy	

70 - 79 Solid precipitation not in showers

ww		
70	Intermittent fall of snow flakes	} slight at time of observation
71	Continuous fall of snow flakes	
72	Intermittent fall of snow flakes	} moderate at time of observation
73	Continuous fall of snow flakes	
74	Intermittent fall of snow flakes	} heavy at time of observation
75	Continuous fall of snow flakes	
76	Ice prisms (with or without fog)	
77	Snow grains (with or without fog)	
78	Isolated starlike snow crystals (with or without fog)	
79	Ice pellets, type (a)	

ww = 80 - 99 Showery precipitation, or precipitation with current or recent thunderstorm

80	Rain shower(s), slight	
81	Rain shower(s), moderate or heavy	
82	Rain shower(s), violent	
83	Shower(s) of rain and snow mixed, slight	
84	Shower(s) of rain and snow mixed, moderate or heavy	
85	Snow shower(s), slight	
86	Snow shower(s), moderate or heavy	
87	Shower(s) of snow pellets or ice pellets, type (b), with or without rain	} - slight
88	or rain and snow mixed	
89	Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	} - moderate or heavy
90		
91	Slight rain at time of observation	
92	Moderate or heavy rain at time of observation	} thunderstorm during the preceding hour but not at time of observation
93	Slight snow, or rain and snow mixed or hail at time of observation	
94	Moderate or heavy snow, or rain and snow mixed or hail at time of observation	
95	Thunderstorm, slight or moderate, without hail, but with rain and/or snow at time of observation	} thunderstorm at time of observation
96	Thunderstorm, slight or moderate, with hail at time of observation	
97	Thunderstorm, heavy, without hail, but with rain and/or snow at time of observation	
98	Thunderstorm, combined with duststorm or sandstorm at time of observation	
99	Thunderstorm, heavy, with hail at time of observation	

PRECIPITATION ON STATION AT TIME OF OBSERVATION

Table 8. CLOUD TYPE CODE

Code	Cloud Type	Code	Cloud Type
0	Cirrus Ci	5	Nimbostratus Ns
1	Cirrocumulus Cc	6	Stratocumulus Sc
2	Cirrostratus Cs	7	Stratus St
3	Altostratus As	8	Cumulus Cu
4	Altostratus As	9	Cumulonimbus Cb
X	Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other analogous phenomena		

Table 9. CLOUD AMOUNT CODE

Code	Cloud Cover	Code	Cloud Cover
0	0	6	6 oktas
1	1 okta or less, but not zero	7	7 oktas or more, but not 8 oktas
2	2 oktas	8	8 oktas
3	3 oktas	9	Sky obscured, or cloud amount cannot be estimated
4	4 oktas		
5	5 oktas		

Note: 1 okta = $\frac{1}{8}$ of the sky covered

Table 10. VISIBILITY

Code	Estimate of hor. Visibility
0	Less than 50 metres (less than 55 yards)
1	50-200 metres (approx. 55-220 yards)
2	200-500 metres (approx. 220-550 yards)
3	500-1,000 metres (approx. 550 yards- $\frac{5}{8}$ n.m.)
4	1-2 km (approx. $\frac{5}{8}$ -1 n.m.)
5	2-4 km (approx. 1-2 n.m.)
6	4-10 km (approx. 2-6 n.m.)
7	10-20 km (approx. 6-12 n.m.)
8	20-50 km (approx. 12-30 n.m.)
9	50 km or more (30 n.m. or more)

Note: n.m. = nautical mile

TABLE 11. INSTITUTE CODE

Code	Institute
01	Marine Ecology Laboratory, Bedford Institute
02	Pacific Oceanographic Group
03	Biological Station, St. Andrews, N.B.
04	Arctic Biological Station, Ste. Anne de Bellevue, P.Q.
05	Biological Station, St. John's Nfld.
06	Station de Biologie Marine, Grande Riviere, P.Q.
07	Marine Sciences Branch, Central Region
08	Defence Research Establishment, Atlantic
09	Defence Research Establishment, Pacific
10	Atlantic Oceanographic Laboratory, Bedford Institute
11	Polar Continental Shelf Project
12	Great Lakes Institute
13	Institute of Oceanography, University of British Columbia
14	Institute of Oceanography, Dalhousie University
15	Marine Sciences Branch, Pacific Region
16	Department of Transport
17	Marine Sciences Centre, McGill University
18	Canadian Forces Maritime Command, East Coast
19	Canadian Forces Maritime Command, West Coast
20	Ontario Water Resources Commission
21	Dept. of National Health and Welfare
22	Inland Waters Branch, Dept. of Energy, Mines and Resources.

SECTION III

Serial oceanographic data

GENERAL INFORMATION

Institute: Atlantic Oceanographic Laboratory
Observation platform: CNAV "Sackville"
Vessel's cruising speed: 10 knots
Total number of stations occupied: 35
Anemometer height above sea level: 11 metres
Barometer readings: Aneroid Barometer (corrected)
Air temperature: Fixed Thermometer
Surface sea water temperature: Bucket Sample (deck thermometer)

The following Standard Deviations were used to express both measurement and interpolation error estimates.

Temperature:	0.02
Salinity:	0.003

C-REF-NO 004	YR 1968	DEPTH 91	WAVES 1 31X3	AIR T 03.8	VIS 7
CONS. NO 001	MONTH 11	MXSAMPD 01	WAVES 2 31X3	WET B	STN
LAT 46-542N	DAY 15	NO.DPTH 7	WND-DIR 310	WW-CODE 02	
LON 60-102W	HR 19.5	W-COLOR	WND-FCE 07	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 990.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
195	0000	067 B	30482		2393	14719
195	0009	0657	30482		2394	14716
195	0018	0657	30511		2397	14717
195	0027	0646	30568		2403	14715
195	0036	0615	30683		2415	14706
195	0045	0572	30818		2431	14691
195	0068	0430	31316		2485	14643

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0670 B	30482		2393	14719	0000	00000	3988
0010	0657	30484		2395	14716	0040	00002	3972
0020	0656	30520		2398	14717	0080	00008	3945
0030	0637	30602		2406	14713	0119	00018	3862
0050	0547	30913		2441	14683	0193	00048	3529

C-REF-NO 004	YR 1968	DEPTH 310	WAVES 1 31X3	AIR T 03.8	VIS 7
COIS. NO 002	MONTH 11	MXSAMPD 03	WAVES 2 31X3	WET B	STN
LAT 47-054N	DAY 15	NO.DPTH 12	WND-DIR 310	WW-CODE 26	
LON 60-002W	HR 21.7	W-COLOR	WND-FCE 07	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1002.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
217	0000	068 B	30676		2407	14726
217	0009	0677	30657		2406	14726
217	0017	0674	30661		2406	14726
217	0026	0678	30661		2406	14729
217	0035	0676	30664		2406	14730
217	0043	0622	30822		2425	14712
217	0065	0120	32547		2609	14524
217	0087	0133	32792		2627	14537
217	0130	0242	33386		2667	14600
217	0147	0375	33926		2698	14668
217	0217	0413	33941		2695	14695
217	0260	0433	34227		2716	14715

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0680 B	30676		2407	14726	0000	00000	3855
0010	0676	30657		2406	14726	0039	00002	3866
0020	0675	30661		2406	14727	0078	00008	3862
0030	0681	3065 C		2405	14731	0116	00018	3878
0050	0462 I	3135 I		2485	14654	0187	00046	3115
0075	0092 I	3275 I		2626	14516	0248	00083	1765
0100	0143 D	3291 I		2636	14545	0291	00122	1676
0125	0218 B	3329 F		2661	14588	0331	00167	1443
0150	0385 C	3396 I		2699	14673	0363	00211	1084
0175	0440 I	3411 I		2706	14702	0389	00255	1027
*0200	0442 I	3408 I		2703	14706	0416	00306	1059
0225	0494 I	3437 I		2720	14736	0440	00360	0899
0250	0459 I	3430 I		2718	14725	0463	00415	0917

C-REF-NO 004	YR 1968	DEPTH 457	WAVES 1 31X2	AIR T 02.2	VIS 8
CONS. NO 003	MONTH 11	MXSAMPD 04	WAVES 2 31X2	WET B	STN
LAT 47-140N	DAY 16	NO.DPTH 14	WND-DIR 310	WW-CODE 01	
LON 59-510W	HR 14.2	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1002.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
142	0000	063 B	31249		2458	14713
142	0009	0626	31132		2449	14712
142	0019	0624	31199		2455	14713
142	0028	0552	31787		2510	14693
142	0038	0315	32318		2576	14602
142	0047	0243	32509		2597	14575
142	0070	0197	32754		2620	14562
142	0094	0204	32870		2629	14571
142	0141	0275	33507		2674	14618
142	0188	0397	34056		2706	14686
142	0235	0440	34353		2725	14715
142	0282	0419	34448		2735	14716
142	0329	0428	34621		2748	14729
142	0376	0431	34735		2756	14740

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630 B	31249		2458	14713	0000	00000	3366
0010	0628	3112 B		2448	14712	0034	00002	3461
0020	0621	3126 C		2460	14713	0069	00007	3353
0030	0505 D	3191 B		2525	14676	0099	00015	2733
0050	0230 B	3256 B		2602	14571	0147	00033	2002
0075	0195	3278 C		2622	14562	0195	00064	1808
0100	0210	3294 D		2634	14575	0239	00103	1698
0125	0244	3327 H		2657	14599	0279	00149	1478
0150	0299 B	3363 B		2681	14632	0313	00197	1254
0175	0365 B	3392 B		2699	14668	0343	00246	1093
0200	0415	34153		2712	14696	0369	00296	0971
0225	0437	34309		2722	14712	0392	00347	0881
0250	0435 B	3439 C		2729	14716	0414	00399	0821
0300	0421	3451 B		2740	14720	0453	00508	0718

C-REF-NO 004	YR 1968	DEPTH 475	WAVES 1 31X3	AIR T 01.1	VIS 8
CONS. NO 004	MONTH 11	MXSAMPD 04	WAVES 2 31X3	WET B	STN
LAT 47-250N	DAY 16	NO.DPTH 14	WND-DIR 310	WW-CODE 02	
LON 59-346W	HR 16.6	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1002.0	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
166	0000	063 B	31930		2512	14722
166	0009	0640	31945		2512	14728
166	0018	0640	31940		2511	14729
166	0026	0640	31942		2511	14731
166	0037	0639	31942		2511	14732
166	0046	0631	31965		2514	14731
166	0069	0227	32721		2615	14575
166	0095	0216	33063		2643	14579
166	0138	0328	33629		2679	14642
166	0184	0498	34214		2708	14729
166	0230	0551	34534		2727	14763
166	0276	0475	34576		2739	14740
166	0322	0446	34656		2749	14736
166	0368	0441	34746		2756	14743

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630 B	31930		2512	14722	0000	00000	2856
0010	0640	31945		2512	14728	0029	00001	2858
0020	0640	31940		2511	14730	0058	00006	2862
0030	0640	31940		2511	14731	0086	00013	2864
0050	0567 I	3208 I		2531	14707	0142	00036	2679
0075	0201 F	3282 E		2625	14566	0198	00070	1777
0100	0224	33129		2648	14584	0240	00108	1564
0125	0283 B	33459		2669	14618	0277	00150	1364
0150	0375 C	3380 C		2688	14667	0309	00195	1196
0175	0467 B	3411 B		2703	14713	0338	00242	1057
0200	0530	34356		2715	14747	0363	00291	0948
0225	0551	34512		2725	14762	0386	00340	0859
0250	0523 D	3457 D		2733	14755	0407	00391	0787
0300	0455	34615		2744	14736	0444	00495	0680

C-REF-NO 004	YR 1968	DEPTH 265	WAVES 1 31X3	AIR T 02.2	VIS B
CONS. NO 005	MONTH 11	MXSAMPD 02	WAVES 2 31X3	WET B	STN
LAT 47-347N	DAY 16	NO.DPTH 11	WND-DIR 310	WW-CODE 02	
LON 59-208W	HR 18.8	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 999.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
188	0000	065 B	31860		2504	14729
188	0009	0644	31864		2505	14729
188	0018	0644	31864		2505	14730
188	0026	0645	31864		2505	14732
188	0035	0639	31864		2505	14731
188	0044	0638	31864		2505	14732
188	0066	0634	31855		2505	14734
188	0088	0633	31867		2506	14737
188	0132	0381	33368		2653	14660
188	0177	0558	34188		2699	14752
188	0221	0608	34407		2710	14782

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0650 B	31860		2504	14729	0000	00000	2932
0010	0644	31864		2505	14729	0029	00002	2923
0020	0644	31864		2505	14731	0059	00006	2925
0030	0642	31864		2505	14731	0088	00014	2924
0050	0637	31861		2505	14732	0147	00038	2921
0075	0638 B	3183 F		2503	14737	0221	00085	2950
0100	0560 I	3221 I		2542	14714	0290	00147	2573
0125	0418 H	3309 I		2627	14671	0345	00208	1769
0150	0433 I	3378 B		2680	14691	0383	00262	1269
0175	0547 B	34166		2698	14747	0413	00311	1106
0200	0521 I	3439 C		2719	14744	0439	00360	0911
0225	0628 D	34394		2706	14791	0463	00414	1043

C-REF-NO 004	YR 1968	DEPTH 219	WAVES 1 31X3	AIR T 02.7	VIS 8
CONS. NO 006	MONTH 11	MXSAMPD 02	WAVES 2 31X3	WET 8	STN
LAT 48-009N	DAY 16	NO.DPTH 10	WND-DIR 310	WW-CODE 86	
LON 59-335W	HR 23.0	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1000.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
230	0000	067 B	31876		2502	14738
230	0010	0657	31845		2502	14734
230	0020	0657	31845		2502	14735
230	0030	0658	31850		2502	14737
230	0039	0656	31854		2502	14738
230	0049	0652	31908		2507	14739
230	0074	0580	32048		2527	14716
230	0098	0356	32578		2593	14633
230	0147	0367	33539		2668	14659
230	0196	0532	34137		2698	14744

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0670 B	31876		2502	14738	0000	00000	2945
0010	0657	31845		2502	14734	0030	00002	2953
0020	0657	31845		2502	14735	0059	00006	2954
0030	0658	31850		2502	14737	0089	00014	2953
0050	0652	31909		2507	14739	0148	00038	2903
0075	0571	32067		2530	14712	0218	00083	2693
0100	0349 B	32622		2597	14631	0278	00135	2051
0125	0314 I	3314 C		2641	14627	0324	00188	1631
0150	0301 I	3356 G		2676	14631	0361	00240	1307
0175	0389 I	3390 D		2695	14678	0392	00290	1131
*0200	0566 D	34176		2697	14759	0421	00345	1125

C-REF-NO 004	YR 1968	DEPTH 466	WAVES 1 31X3	AIR T 01.1	VIS 8
CONS. NO 007	MONTH 11	MXSAMPD 04	WAVES 2 31X3	WET B	STN
LAT 48-095N	DAY 17	NO.DPTH 14	WND-DIR 310	WW-CODE 01	
LON 60-055W	HR 02.5	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1003.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
025	0000	063 B	31870		2507	14722
025	0009	0630	31862		2506	14723
025	0019	0630	31862		2506	14725
025	0028	0630	31862		2506	14726
025	0038	0630	31862		2506	14728
025	0047	0629	31862		2506	14729
025	0070	0180	32588		2608	14552
025	0094	0180	32859		2630	14560
025	0141	0431	33746		2678	14688
025	0188	0521	34294		2711	14740
025	0235	0504	34506		2730	14744
025	0282	0493	34653		2743	14749
025	0328	0457	34725		2753	14743
025	0377	0441	34757		2757	14745

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630 B	31870		2507	14722	0000	00000	2901
0010	0630	31862		2506	14723	0029	00001	2908
0020	0630	31862		2506	14725	0058	00006	2909
0030	0630	31862		2506	14726	0088	00013	2910
0050	0576 I	3194 I		2519	14709	0145	00037	2791
0075	0157 E	3266 F		2615	14544	0204	00073	1871
0100	0207 E	3297 E		2636	14574	0248	00113	1673
0125	0336 I	3344 I		2663	14641	0287	00157	1427
0150	0459	33877		2685	14703	0321	00204	1220
0175	0510	34176		2703	14732	0349	00252	1055
0200	0521 B	3437 C		2717	14743	0374	00300	0929
0225	0512 B	3448 C		2727	14745	0397	00348	0838
0250	0502	34560		2735	14746	0417	00397	0767
0300	0479	34688		2747	14747	0453	00498	0652

C-REF-NO 004	YR 1968	DEPTH 420	WAVES 1 31X3	AIR T 01.1	VIS 8
CONS. NO 008	MONTH 11	MXSAMPD 04	WAVES 2 31X4	WET B	STN
LAT 48-221N	DAY 17	NO.DPTH 14	WND-DIR 310	WW-CODE 70	
LON 60-395W	HR 06.8	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1004.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
068	0000	057 B	31754		2505	14696
068	0010	0570	31706		2501	14697
068	0019	0570	31706		2501	14698
068	0029	0571	31704		2501	14700
068	0039	0352	32070		2553	14615
068	0049	0123	32435		2599	14521
068	0073	0138	32677		2618	14535
068	0097	0146	32775		2625	14544
068	0146	0383	33785		2686	14669
068	0195	0463	33248		2635	14703
068	0243	0457	34475		2733	14725
068	0292	0440	34606		2745	14728
068	0341	0432	34698		2753	14734
068	0390	0432	34740		2757	14743

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0570 B	31754		2505	14696	0000	00000	2919
0010	0570	31706		2501	14697	0030	00002	2956
0020	0575 B	3170 B		2500	14700	0059	00006	2969
0030	0554 B	3173 B		2505	14694	0089	00014	2921
0050	0116 C	3246 B		2602	14518	0138	00033	2001
0075	0137	3268 B		2618	14535	0187	00064	1841
0100	0159 B	3284 H		2630	14551	0232	00104	1734
0125	0273 I	3338 I		2664	14613	0271	00149	1415
0150	0394	3374 I		2681	14674	0305	00197	1259
0175	0445 B	3345 I		2653	14695	0340	00256	1527
0200	0465	3336 I		2644	14706	0380	00332	1618
0225	0465 B	3398 I		2693	14719	0415	00408	1159
0250	0455	3453 G		2738	14726	0439	00465	0737
0300	0438	34624		2747	14729	0474	00564	0654

C-REF-NO 004	YR 1968	DEPTH 374	WAVES 1 36X3	AIR T 01.6	VIS 8
CONS. NO 009	MONTH 11	MXSAMPD 03	WAVES 2 36X3	WET B	STN
LAT 48-360N	DAY 17	NO.DPTH 13	WND-DIR 360	WW-CODE 70	
LON 61-110W	HR 10.7	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1000.8	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
107	0000	054 B	31822		2514	14684
107	0009	0542	31775		2510	14686
107	0017	0542	31776		2510	14687
107	0026	0546	31783		2510	14690
107	0035	0561	31873		2515	14699
107	0043	0470	32252		2555	14668
107	0065	0282	32892		2624	14600
107	0087	0336	33320		2654	14633
107	0130	0382	33806		2688	14666
107	0173	0409	34139		2711	14689
107	0217	0443	34419		2730	14714
107	0260	0451	34573		2741	14727
107	0303	0440	34659		2749	14731

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540 B	31822		2514	14684	0000	00000	2835
0010	0542	31774		2510	14686	0029	00001	2874
0020	0542	31773		2510	14688	0058	00006	2876
0030	0560 C	3180 D		2510	14697	0087	00013	2879
0050	0392 C	3250 E		2583	14640	0137	00034	2180
0075	0293 E	33107		2640	14610	0185	00063	1635
0100	0355	3350 D		2666	14646	0224	00097	1396
0125	0379	3377 B		2685	14664	0257	00135	1221
0150	0395	3397 B		2700	14677	0286	00176	1082
0175	0411	34154		2712	14690	0311	00219	0965
0200	0431	34322		2724	14705	0334	00263	0862
0225	0446	34455		2733	14718	0355	00308	0782
0250	0451	34545		2739	14725	0374	00354	0722
0300	0442	34657		2749	14731	0408	00450	0633

C-REF-NO 004	YR 1968	DEPTH 210	WAVES 1 36X3	AIR T 00.5	VIS 8
CONS. NO 010	MONTH 11	MXSAMPD 02	WAVES 2 36X3	WET B	STN
LAT 48-535N	DAY 17	NO.DPTH 10	WND-DIR 360	WW-CODE 70	
LON 61-385W	HR 13.7	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SO 151	C/I 1810	W-TRNSP	BARO 1011.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
137	0000	049 B	31678		2508	14662
137	0010	0490	31675		2508	14663
137	0020	0493	31684		2508	14666
137	0030	0502	31700		2508	14672
137	0039	0466	31770		2518	14659
137	0049	0075	32250		2587	14497
137	0074	0037	32472		2607	14487
137	0098	0093	32796		2630	14521
137	0148	0136	32962		2641	14551
137	0197	0280	33590		2680	14631

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0490 B	31678		2508	14662	0000	00000	2891
0010	0490	31675		2508	14663	0029	00001	2894
0020	0493	31684		2508	14666	0058	00006	2891
0030	0502	31700		2508	14672	0087	00013	2889
0050	0060 D	3227 C		2590	14491	0138	00033	2110
0075	0039	32486		2608	14488	0188	00066	1935
0100	0095	3281 C		2631	14522	0235	00107	1723
0125	0116 D	3290 I		2637	14537	0277	00156	1664
0150	0170 I	3315 I		2654	14569	0317	00212	1508
0175	0226 F	3338 I		2668	14601	0353	00272	1376
*0200	0288 B	3362 D		2682	14635	0387	00336	1252

C-REF-NO 004	YR 1968	DEPTH 274	WAVES 1 36X3	AIR T 00.0	VIS 8
CONS. NO 011	MONTH 11	MXSAMPD 02	WAVES 2 36X3	WET B	STN
LAT 49-080N	DAY 17	NO.DPTH 11	WND-DIR 360	WW-CODE 01	
LON 60-015W	HR 21.2	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1014.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
212	0000	059 B	31872		2512	14705
212	0010	0596	31852		2510	14709
212	0020	0595	31852		2510	14710
212	0030	0598	31856		2510	14713
212	0040	0601	31868		2510	14716
212	0050	0222	32299		2582	14564
212	0074	0115	32651		2617	14525
212	0099	0194	33040		2643	14569
212	0148	0398	33881		2692	14677
212	0198	0475	34300		2717	14723
212	0248	0450	34586		2743	14725

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0590 B	31872		2512	14705	0000	00000	2853
0010	0596	31852		2510	14709	0029	00001	2876
0020	0595	31852		2510	14710	0058	00006	2876
0030	0598	31856		2510	14713	0087	00013	2877
0050	0222	32299		2582	14564	0138	00034	2190
0075	0116	32666		2618	14526	0188	00066	1841
0100	0198	33059		2644	14572	0232	00104	1598
0125	0306 D	3351 G		2671	14629	0269	00146	1348
0150	0403	33903		2693	14680	0300	00190	1143
0175	0454	3414 D		2707	14708	0327	00236	1018
0200	0481 B	3437 I		2722	14727	0351	00282	0883
0225	0478	3451 G		2734	14732	0372	00327	0773
*0250	0446	34589		2743	14724	0391	00372	0684

C-REF-NO 004	YR 1968	DEPTH 60	WAVES 1 36X3	AIR T 00.5	VIS 7
CONS. NO 012	MONTH 11	MXSAMPD 00	WAVES 2 36X3	WET B	STN
LAT 49-198N	DAY 18	NO.DPTH 6	WND-DIR 360	WW-CODE 02	
LON 58-305W	HR 03.4	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1014.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
034	0000	060 B	31690		2496	14707
034	0010	0605	31640		2492	14710
034	0020	0604	31642		2492	14711
034	0030	0607	31642		2492	14714
034	0040	0608	31646		2492	14716
034	0050	0246	32398		2588	14575

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0600 B	31690		2496	14707	0000	00000	3001
0010	0605	31640		2492	14710	0030	00002	3045
0020	0604	31642		2492	14711	0061	00006	3043
0030	0607	31642		2492	14714	0092	00014	3048
0050	0246	32398		2588	14575	0144	00035	2133

C-REF-NO 004	YR 1968	DEPTH 162	WAVES 1 36X2	AIR T -01.1	VIS 8
CONS. NO 013	MONTH 11	MXSAMPD 01	WAVES 2 36X3	WET B	STN
LAT 49-350N	DAY 18	NO.DPTH 9	WND-DIR 360	WW-CODE 02	
LON 58-500W	HR 06.0	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1013.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
060	0000	056 B	31837		2513	14693
060	0010	0565	31801		2509	14696
060	0020	0565	31798		2509	14697
060	0030	0570	31804		2509	14701
060	0040	0462	32075		2542	14662
060	0050	0255	32500		2595	14581
060	0075	0191	32723		2618	14560
060	0100	0207	32948		2635	14574
060	0140	0281	33384		2664	14619

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0560 B	31837		2513	14693	0000	00000	2846
0010	0565	31801		2509	14696	0029	00001	2879
0020	0565	31798		2509	14697	0058	00006	2882
0030	0570	31804		2509	14701	0087	00013	2884
0050	0255	32500		2595	14581	0137	00033	2063
0075	0191	32723		2618	14560	0186	00064	1847
0100	0207	32948		2635	14574	0230	00104	1689
0125	0234 B	33217		2654	14594	0271	00150	1507

C-REF-NO 004	YR 1968	DEPTH 256	WAVES 1 36X2	AIR T -02.2	VIS 8
CONS. NO 014	MONTH 11	MXSAMPD 02	WAVES 2 36X3	WET B	STN
LAT 49-500N	DAY 18	NO.DPTH 11	WND-DIR 360	WW-CODE 02	
LON 59-250W	HR 09.1	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 150	C/I 1810	W-TRNSP	BARO 1015.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
091	0000	045 B	31652		2510	14645
091	0010	0445	31632		2509	14644
091	0020	0447	31633		2509	14646
091	0030	0446	31664		2511	14648
091	0040	0399	31741		2522	14631
091	0050	0203	32347		2587	14556
091	0075	0133	32508		2605	14531
091	0100	0129	32746		2624	14537
091	0149	0254	33419		2669	14609
091	0199	0411	34156		2713	14695
091	0239	0429	34394		2730	14712

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0450 B	31652		2510	14645	0000	00000	2871
0010	0445	31632		2509	14644	0029	00001	2881
0020	0447	31633		2509	14646	0058	00006	2883
0030	0446	31664		2511	14648	0087	00013	2860
0050	0203	32347		2587	14556	0137	00033	2140
0075	0133	32508		2605	14531	0189	00066	1971
0100	0129	32746		2624	14537	0236	00108	1788
0125	0180 C	3307 C		2646	14568	0279	00157	1578
0150	0258	33436		2670	14611	0316	00209	1361
0175	0343 D	3383 H		2693	14657	0347	00261	1142
0200	0387 H	3409 I		2710	14684	0374	00313	0992
0225	0418 D	3430 H		2723	14704	0397	00363	0868

C-REF-NO 004	YR 1968	DEPTH 128	WAVES 1 34X2	AIR T -02.7	VIS 8
CONS. NO 015	MONTH 11	MXSAMPD 01	WAVES 2 34X3	WET 8	STN
LAT 50-050N	DAY 18	NO.DPTH 8	WND-DIR 340	WW-CODE 02	
LON 59-550W	HR 11.8	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 186	C/I 1810	W-TRNSP	BARO 1016.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
118	0000	033 B	31418		2503	14590
118	0010	0330	31392		2501	14592
118	0020	0333	31403		2501	14595
118	0030	0337	31407		2501	14598
118	0040	0338	31406		2501	14600
118	0050	0338	31415		2502	14602
118	0075	0335	31426		2503	14605
118	0100	0329	31426		2504	14607

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0330 B	31418		2503	14590	0000	00000	2939
0010	0330	31392		2501	14592	0030	00002	2959
0020	0333	31403		2501	14595	0059	00006	2954
0030	0337	31407		2501	14598	0089	00014	2955
0050	0338	31415		2502	14602	0148	00038	2950
0075	0335	31426		2503	14605	0223	00085	2940
0100	0329	31426		2504	14607	0296	00152	2936

C-REF-NO 004 YR 1968 DEPTH 261 WAVES 1 29X1 AIR T -02.7 VIS 8
 CONS. NO 016 MONTH 11 MXSAMPD 02 WAVES 2 29X2 WET B STN
 LAT 49-450N DAY 18 NO.DPTH 11 WND-DIR 290 WW-CODE 02
 LON 61-500W HR 22.1 W-COLOR WND-FCE 03 CLD-TPE
 MARSD SQ 151 C/I 1810 W-TRNSP BARO 1019.0 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
221	0000	047 B	31678		2510	14653
221	0010	0475	31632		2506	14656
221	0020	0474	31633		2506	14658
221	0030	0476	31639		2506	14660
221	0040	0474	31638		2506	14661
221	0050	0475	31638		2506	14663
221	0075	0175	32095		2569	14544
221	0100	0054	32478		2607	14499
221	0150	0147	32044		2567	14543
221	0200	0343	33819		2693	14661
221	0249	0414	34373		2729	14707

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0470 B	31678		2510	14653	0000	00000	2871
0010	0475	31632		2506	14656	0029	00002	2911
0020	0474	31633		2506	14658	0058	00006	2910
0030	0476	31639		2506	14660	0088	00013	2908
0050	0475	31638		2506	14663	0146	00037	2909
0075	0175	32095		2569	14544	0212	00079	2312
0100	0054	32478		2607	14499	0265	00126	1948
0125	0066 G	3222 I		2586	14505	0317	00186	2148
0150	0147	32044		2567	14543	0373	00266	2332
0175	0246 E	3287 I		2625	14603	0425	00351	1780
0200	0343	33819		2693	14661	0462	00421	1151
0225	0362 H	3377 I		2686	14673	0492	00486	1212
0250	0416	3440 D		2731	14708	0517	00547	0792

C-REF-NO 004 YR 1968 DEPTH 128 WAVES 1 08X1 AIR T -02.7 VIS 8
 CONS. NO 017 MONTH 11 MXSAMPD 01 WAVES 2 08X1 WET B STN
 LAT 50-030N DAY 19 NO.DPTH 8 WND-DIR 080 WW-CODE 02
 LON 64-065W HR 05.0 W-COLOR WND-FCE 04 CLD-TPE
 MARSD SQ 187 C/I 1810 W-TRNSP BARO 1018.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
050	0000	037 B				
050	0009	0380	30851		2453	14606
050	0019	0362	30946		2463	14601
050	0028	0400	31258		2484	14623
050	0037	0414	31348		2490	14631
050	0047	0404	31376		2493	14629
050	0070	0279	31849		2541	14586
050	0093	0249	31930		2550	14577

*TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0370 B	3070 I		2442	14598	0000	00000	3516
0010	0377	3087 C		2455	14605	0035	00002	3396
0020	0366	3098 C		2465	14603	0068	00007	3301
0030	0405	3129 B		2486	14626	0101	00015	3103
0050	0389 B	3143 F		2499	14624	0162	00040	2981
0075	0299 I	3176 I		2532	14594	0233	00085	2660

C-REF-NO 004	YR 1968	DEPTH 138	WAVES 1 27X1	AIR T 01.1	VIS 8
CONS. NO 018	MONTH 11	MXSAMPD 01	WAVES 2 27X1	WET B	STN
LAT 50-028N	DAY 20	NO.DPTH 8	WND-DIR 270	WW-CODE 02	
LON 66-195W	HR 23.0	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 187	C/I 1810	W-TRNSP	BARO 980.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
230	0000	042 B	30817		2447	14621
230	0010	0424	30783		2444	14624
230	0019	0426	30788		2444	14626
230	0029	0431	30916		2454	14632
230	0038	0416	31019		2463	14628
230	0048	0389	31070		2470	14619
230	0072	0359	31170		2481	14611
230	0096	0320	31710		2527	14606

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0420 B	30817		2447	14621	0000	00000	3472
0010	0424	30783		2444	14624	0035	00002	3502
0020	0427	30798		2445	14627	0070	00007	3493
0030	0430	30929		2455	14631	0105	00016	3398
0050	0386	3107 B		2470	14618	0172	00043	3252
0075	0346 C	3128 I		2491	14608	0251	00094	3057

C-REF-NO 004	YR 1968	DEPTH 301	WAVES 1 27X2	AIR T 01.1	VIS B
CONS. NO 019	MONTH 11	MXSAMPD 03	WAVES 2 27X2	WET B	STN
LAT 49-476N	DAY 21	NO.DPTH 12	WND-DIR 270	WW-CODE 02	
LON 66-198W	HR 01.0	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 983.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
010	0000	036 B	30701		2443	14594
010	0009	0367	30635		2437	14597
010	0018	0370	30638		2437	14600
010	0027	0386	31088		2472	14614
010	0036	0367	31454		2502	14613
010	0045	0354	31533		2510	14610
010	0067	0237	32004		2557	14569
010	0089	0157	32317		2588	14541
010	0134	0083	32685		2622	14521
010	0177	0240	33632		2687	14611
010	0222	0335	34070		2713	14665
010	0258	0380	34319		2729	14693

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0360 B	30701		2443	14594	0000	00000	3507
0010	0367	3062 B		2436	14597	0036	00002	3572
0020	0375	3072 E		2444	14603	0071	00007	3504
0030	0381	3123 C		2483	14615	0104	00016	3126
0050	0331 C	3163 E		2520	14602	0164	00040	2782
0075	0204	32132		2570	14557	0228	00080	2304
0100	0122 B	3239 I		2596	14529	0283	00129	2051
0125	0083 B	3260 I		2615	14518	0332	00185	1871
0150	0132 F	3303 I		2647	14550	0375	00246	1572
0175	0231	3359 C		2684	14606	0411	00304	1226
0200	0296	3390 F		2703	14642	0439	00359	1047
0225	0344	3416 I		2719	14670	0464	00412	0901
0250	0374	3430 D		2728	14689	0486	00465	0826

C-REF-NO 004	YR 1968	DEPTH 320	WAVES 1 27X3	AIR T 01.1	VIS 8
CONS. NO 020	MONTH 11	MXSAMPD 03	WAVES 2 27X3	WET B	STN
LAT 49-356N	DAY 21	NO.DPTH 12	WND-DIR 270	WW-CODE 02	
LON 66-198W	HR 03.0	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 985.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
030	0000	032 B	31252		2491	14584
030	0009	0317	31217		2488	14584
030	0017	0316	31217		2488	14584
030	0025	0316	31217		2488	14586
030	0034	0315	31234		2490	14587
030	0042	0314	31658		2523	14594
030	0064	0097	32417		2600	14512
030	0085	0085	32719		2624	14514
030	0127	0152	33198		2659	14558
030	0170	0261	33739		2694	14620
030	0212	0348	34134		2717	14670
030	0254	0400	34439		2736	14703

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0320 B	31252		2491	14584	0000	00000	3057
0010	0317	31216		2488	14584	0031	00002	3082
0020	0316	31216		2488	14585	0062	00006	3081
0030	0316	3120 F		2486	14586	0093	00014	3097
0050	0241 I	3200 B		2556	14568	0149	00036	2435
0075	0077 C	3260 E		2616	14507	0203	00070	1866
0100	0100 B	3290 C		2638	14526	0247	00110	1656
0125	0147	33177		2657	14555	0286	00155	1474
0150	0209	3349 C		2678	14591	0321	00203	1279
0175	0273	33792		2697	14627	0351	00253	1107
0200	0326	34032		2711	14657	0377	00304	0975
0225	0365	34245		2724	14681	0400	00354	0855
0250	0396	34415		2735	14700	0421	00403	0760

C-REF-NO 004	YR 1968	DEPTH 307	WAVES 1 25X4	AIR T -01.1	VIS 8
CONS. NO 021	MONTH 11	MXSAMPD 02	WAVES 2 25X4	WET B	STN
LAT 49-198N	DAY 21	NO.DPTH 11	WND-DIR 250	WW-CODE 02	
LON 66-180W	HR 05.3	W-COLOR	WND-FCE 07	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 987.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
053	0000	028 B	31302		2498	14567
053	0009	0318	31139		2482	14583
053	0016	0318	31179		2485	14585
053	0025	0316	31232		2489	14586
053	0033	0316	31247		2490	14588
053	0041	0318	31272		2492	14590
053	0061	0325	31545		2513	14600
053	0087	0147	32266		2584	14536
053	0123	0126	33004		2645	14543
053	0164	0200	33445		2675	14588
053	0205	0310	33980		2708	14650

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0280 B	31302		2498	14567	0000	00000	2988
0010	0319	31140		2482	14584	0031	00002	3141
0020	0317	31205		2487	14585	0062	00006	3091
0030	0316	31243		2490	14587	0093	00014	3061
0050	0329 C	31361		2498	14597	0154	00039	2983
0075	0234 G	3192 H		2550	14568	0223	00082	2488
0100	0120 D	32569		2610	14530	0278	00131	1917
0125	0128	3303 B		2647	14544	0322	00181	1573
0150	0167 B	3331 G		2667	14570	0359	00234	1384
0175	0215 C	3367 I		2691	14600	0391	00287	1154
0200	0292	3393 C		2706	14641	0419	00339	1018

C-REF-NO 004	YR 1968	DEPTH 228	WAVES 1 25X5	AIR T -02.7	VIS 8
CONS. NO 022	MONTH 11	MXSAMPD 01	WAVES 2 25X5	WET B	STN
LAT 49-158N	DAY 21	NO.DPTH 10	WND-DIR 250	WW-CODE 02	
LON 66-168W	HR 06.7	W-COLOR	WND-FCE 08	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 988.0	CLD-APT 4	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
067	0000	033 B	30874		2460	14583
067	0007	0343	30809		2453	14589
067	0014	0341	30829		2455	14590
067	0022	0341	30894		2460	14592
067	0029	0341	30948		2465	14594
067	0036	0342	31033		2471	14596
067	0054	0344	31064		2474	14601
067	0072	0346	31090		2475	14605
067	0108	0159	32241		2582	14544
067	0144	0076	32747		2627	14520

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0330 B	30874		2460	14583	0000	00000	3351
0010	0343	30810		2453	14589	0034	00002	3410
0020	0341	30876		2459	14591	0068	00007	3359
0030	0341	30960		2466	14594	0101	00016	3296
0050	0344	3107 C		2474	14600	0167	00042	3216
0075	0333 B	3117 I		2483	14601	0247	00093	3132
0100	0207 E	3195 I		2555	14560	0317	00155	2445
0125	0153 I	3229 I		2586	14545	0375	00221	2151

C-REF-NO 004	YR 1968	DEPTH 338	WAVES 1 25X5	AIR T -02.2	VIS 8
CONS. NO 023	MONTH 11	MXSAMPD 03	WAVES 2 25X5	WET B	STN
LAT 49-265N	DAY 21	NO.DPTH 12	WND-DIR 250	WW-CODE 03	
LON 65-371W	HR 09.7	W-COLOR	WND-FCE 08	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 990.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
097	0000	030 B	31174		2486	14574
097	0009	0304	31141		2483	14577
097	0017	0303	31120		2481	14578
097	0026	0304	31144		2483	14580
097	0035	0303	31160		2485	14581
097	0043	0295	31394		2504	14582
097	0065	0079	32492		2607	14505
097	0087	0081	32778		2629	14513
097	0130	0158	33270		2664	14562
097	0173	0274	33805		2698	14627
097	0217	0349	34165		2720	14671
097	0260	0392	34378		2732	14700

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0300 B	31174		2486	14574	0000	00000	3100
0010	0304	31137		2483	14577	0031	00002	3131
0020	0303	31126		2482	14578	0063	00006	3140
0030	0304	3114 D		2483	14580	0094	00015	3133
0050	0230 I	3175 I		2537	14560	0152	00038	2611
0075	0065 D	3267 I		2622	14503	0208	00072	1806
0100	0097	3293 B		2641	14525	0251	00111	1629
0125	0146	33214		2660	14555	0290	00155	1444
0150	0212 B	3353 C		2681	14592	0324	00203	1256
0175	0278	33825		2699	14629	0353	00252	1086
0200	0325	34046		2712	14657	0379	00301	0963
0225	0361	3422 B		2723	14679	0402	00351	0868
0250	0386	34344		2730	14695	0423	00403	0803

C-REF-NO 004	YR 1968	DEPTH 118	WAVES 1 25X5	AIR T -02.2	VIS 8
CONS. NO 024	MONTH 11	MXSAMPD 01	WAVES 2 25X5	WET B	STN
LAT 49-121N	DAY 21	NO.DPTH 8	WND-DIR 270	WW-CODE 03	
LON 64-482W	HR 12.6	W-COLOR	WND-FCE 08	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 990.0	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
126	0000	031 B	29848		2380	14561
126	0008	0322	29771		2373	14566
126	0017	0323	29774		2373	14568
126	0025	0333	29881		2380	14575
126	0033	0337	29915		2383	14579
126	0042	0339	29936		2384	14581
126	0062	0346	30174		2403	14591
126	0083	0324	30581		2437	14590

*TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0310 B	29848		2380	14561	0000	00000	4113
0010	0322	29762		2372	14566	0042	00002	4187
0020	0327	2981 B		2376	14571	0084	00009	4152
0030	0336	29907		2382	14578	0125	00019	4088
0050	0343	3001 B		2390	14585	0206	00052	4019
0075	0333	3039 B		2421	14590	0304	00114	3718

C-REF-NO 004	YR 1968	DEPTH 365	WAVES 1 28X5	AIR T -02.2	VIS 8
CONS. NO 025	MONTH 11	MXSAMPD 02	WAVES 2 28X5	WET B	STN
LAT 49-178N	DAY 21	NO.DPTH 12	WND-DIR 280	WW-CODE 03	
LON 64-450W	HR 22.4	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 996.0	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
224	0000	030 B	31035		2475	14572
224	0008	0309	30946		2467	14576
224	0015	0309	30948		2467	14578
224	0023	0309	30948		2467	14579
224	0030	0309	30948		2467	14580
224	0038	0310	30956		2468	14582
224	0057	0328	31178		2484	14596
224	0076	0236	32008		2557	14570
224	0113	0090	32874		2637	14523
224	0151	0166	33331		2668	14570
224	0188	0265	33734		2693	14625
224	0227	0338	34092		2715	14667

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0300 B	31035		2475	14572	0000	00000	3205
0010	0309	30943		2467	14577	0033	00002	3283
0020	0309	30948		2467	14578	0066	00007	3279
0030	0309	30948		2467	14580	0099	00015	3279
0050	0326 C	3104 D		2473	14592	0164	00042	3221
0075	0242	3196 C		2553	14572	0235	00086	2462
0100	0126 C	3265 G		2616	14534	0290	00134	1860
0125	0100 D	3304 E		2650	14532	0333	00183	1544
0150	0162	33322		2668	14568	0369	00235	1374
0175	0230	33598		2685	14606	0402	00289	1217
0200	0281 C	33848		2700	14635	0431	00344	1073
0225	0334	34075		2714	14665	0456	00400	0952

C-REF-NO 004	YR 1968	DEPTH 374	WAVES 1 28X4	AIR T -01.1	VIS 6
CONS. NO 026	MONTH 11	MXSAMPD 03	WAVES 2 28X5	WET B	STN
LAT 49-242N	DAY 21	NO.DPTH 12	WND-DIR 280	WW-CODE 02	
LON 64-408W	HR 23.8	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 997.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
238	0000	030 B	31141		2483	14574
238	0009	0318	31074		2477	14582
238	0017	0318	31085		2477	14584
238	0026	0318	31086		2477	14585
238	0034	0317	31087		2478	14586
238	0043	0317	31093		2478	14588
238	0064	0047	32714		2626	14493
238	0086	0099	33011		2647	14525
238	0129	0227	33576		2683	14596
238	0171	0306	33930		2705	14642
238	0214	0370	34247		2724	14681
238	0257	0399	34423		2735	14703

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0300 B	31141		2483	14574	0000	00000	3125
0010	0318	31074		2476	14582	0032	00002	3191
0020	0318	31086		2477	14584	0064	00007	3182
0030	0317	31086		2478	14585	0096	00015	3181
0050	0231 I	3158 I		2524	14558	0155	00039	2741
0075	0051 G	3295 I		2645	14500	0210	00072	1586
0100	0141 B	3321 B		2660	14548	0248	00106	1446
0125	0215	33528		2680	14590	0282	00145	1257
0150	0270	3377 B		2695	14621	0312	00187	1121
0175	0313	33963		2707	14646	0339	00232	1013
0200	0352	34154		2718	14670	0363	00278	0908
0225	0378	3429 C		2727	14687	0385	00326	0834
0250	0396	34398		2733	14700	0405	00375	0773

C-REF-NO 004 YR 1968 DEPTH 301 WAVES 1 28X4 AIR T -01.1 VIS 6
 CONS. NO 027 MONTH 11 MXSAMPD 03 WAVES 2 28X5 WET B STN
 LAT 49-334N DAY 22 NO.DPTH 12 WND-DIR 280 WW-CODE 02
 LON 64-320W HR 01.7 W-COLOR WND-FCE 06 CLD-TPE
 MARSD SQ 151 C/I 1810 W-TRNSP BARO 997.0 CLD-AMT 7 HW

OBSERVED

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
017	0000	042 B	31065		2467	14624
017	0009	0421	30675		2436	14621
017	0019	0421	30679		2436	14623
017	0028	0420	30688		2437	14624
017	0038	0420	30696		2437	14625
017	0047	0415	30765		2443	14626
017	0070	0115	32456		2602	14521
017	0094	0062	32734		2627	14505
017	0141	0210	33501		2679	14590
017	0188	0329	34117		2718	14657
017	0235	0360	34176		2719	14679
017	0282	0406	34442		2736	14710

INTERPOLATED

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0420 B	31065		2467	14624	0000	00000	3285
0010	0421	3067 B		2435	14621	0035	00002	3588
0020	0421	30680		2436	14623	0071	00007	3577
0030	0420	30687		2437	14624	0106	00017	3572
0050	0381 F	3096 I		2462	14614	0176	00045	3328
0075	0089 C	3257 I		2613	14512	0242	00085	1896
0100	0072 C	3283 C		2634	14512	0287	00125	1692
0125	0143 G	3323 F		2662	14553	0326	00170	1429
0150	0237	3365 D		2688	14605	0359	00216	1186
0175	0302	3398 E		2709	14642	0386	00261	0989
0200	0340 B	3415 H		2719	14665	0410	00307	0901
0225	0356 B	3418 G		2720	14676	0433	00356	0896
0250	0390 E	3437 I		2731	14697	0454	00408	0791

C-REF-NO 004	YR 1968	DEPTH 164	WAVES 1 28X4	AIR T -01.1	VIS 6
CONS. NO 028	MONTH 11	MXSAMPD 01	WAVES 2 28X5	WET B	STN
LAT 49-404N	DAY 22	NO.DPTH 9	WND-DIR 280	WW-CODE 02	
LON 64-260W	HR 03.0	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 998.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
030	0000	041 B	30991		2462	14619
030	0009	0409	30978		2461	14620
030	0018	0409	30975		2461	14621
030	0027	0418	31006		2462	14627
030	0036	0415	31134		2473	14629
030	0045	0201	32147		2571	14551
030	0073	0071	32520		2609	14503
030	0089	0069	32750		2628	14508
030	0134	0156	33158		2655	14560

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0410 B	30991		2462	14619	0000	00000	3331
0010	0409	30977		2461	14620	0034	00002	3342
0020	0411	30976		2460	14622	0067	00007	3345
0030	0429 D	3099 I		2460	14632	0101	00016	3348
0050	0142 H	3237 I		2593	14529	0155	00037	2085
0075	0069	32550		2612	14503	0206	00068	1902
0100	0058 D	3285 D		2637	14506	0251	00108	1667
0125	0116 B	3309 B		2652	14540	0291	00155	1522

C-REF-NO 004	YR 1968	DEPTH 384	WAVES 1 28X4	AIR T 00.0	VIS 7
CONS. NO 029	MONTH 11	MXSAMPD 03	WAVES 2 28X5	WET B	STN
LAT 49-100N	DAY 22	NO.DPTH 12	WND-DIR 280	WW-CODE 70	
LON 63-530W	HR 07.1	W-COLOR	WND-FCE 06	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1002.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
071	0000	037 B	30944		2462	14601
071	0010	0384	30876		2455	14608
071	0019	0385	30870		2454	14610
071	0028	0385	30877		2455	14611
071	0038	0146	32427		2597	14530
071	0047	0120	32649		2617	14523
071	0071	0084	32913		2640	14514
071	0095	0136	33176		2658	14545
071	0142	0251	33710		2692	14611
071	0189	0346	34137		2718	14665
071	0236	0388	34352		2731	14694
071	0284	0408	34501		2740	14712

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0370 B	30944		2462	14601	0000	00000	3332
0010	0384	30876		2455	14608	0034	00002	3395
0020	0390 B	3084 G		2451	14612	0068	00007	3430
0030	0338 F	3118 I		2483	14596	0101	00015	3130
0050	0112	3270 C		2621	14520	0151	00034	1816
0075	0089	32957		2643	14518	0194	00062	1604
0100	0148	33235		2662	14552	0232	00096	1430
0125	0210	3352 B		2680	14587	0266	00135	1257
0150	0270	33794		2697	14621	0296	00176	1101
0175	0322	34026		2711	14651	0322	00220	0973
0200	0359	3420 B		2721	14673	0345	00264	0881
0225	0382	3431 B		2728	14689	0367	00311	0819
0250	0402 B	3443 D		2735	14703	0387	00359	0757

C-REF-NO 004	YR 1968	DEPTH 400	WAVES 1 28X3	AIR T 00.0	VIS 7
CONS. NO 030	MONTH 11	MXSAMPD 02	WAVES 2 28X3	WET B	STN
LAT 48-565N	DAY 22	NO.DPTH 11	WND-DIR 280	WW-CODE 02	
LON 63-035W	HR 10.9	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1004.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
109	0000	047 B	30861		2445	14642
109	0009	0472	30808		2441	14644
109	0017	0472	30822		2442	14646
109	0025	0475	30826		2442	14648
109	0034	0530	31158		2463	14677
109	0043	0499	31400		2485	14669
109	0064	0110	32330		2592	14516
109	0085	0092	32632		2617	14516
109	0127	0150	33044		2646	14555
109	0170	0251	33490		2675	14612
109	0212	0388	33939		2698	14684

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0470 B	30861		2445	14642	0000	00000	3486
0010	0472	30808		2441	14644	0035	00002	3528
0020	0470	3081 D		2441	14645	0071	00007	3527
0030	0507 C	3100 F		2452	14665	0106	00016	3425
0050	0373 I	3172 I		2523	14621	0168	00041	2753
0075	0075 G	3253 H		2610	14505	0227	00077	1920
0100	0103 B	3279 D		2629	14526	0273	00118	1737
0125	0145	33027		2645	14552	0314	00166	1586
0150	0199	33280		2662	14583	0352	00220	1433
0175	0265	33541		2677	14620	0387	00277	1289
0200	0345	33808		2692	14662	0418	00336	1161

C-REF-NO 004	YR 1968	DEPTH 384	WAVES 1 28X3	AIR T 00.5	VIS 7
CONS. NO 031	MONTH 11	MXSAMPD 03	WAVES 2 28X3	WET B	STN
LAT 48-434N	DAY 22	NO.DPTH 12	WND-DIR 280	WW-CODE 02	
LON 62-195W	HR 14.6	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1006.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
146	0000	045 B	31824		2524	14647
146	0010	0452	31799		2522	14649
146	0020	0451	31798		2522	14650
146	0030	0451	31793		2521	14652
146	0040	0450	31793		2521	14653
146	0050	0154	32227		2581	14532
146	0074	0070	32615		2617	14504
146	0099	0140	32900		2636	14544
146	0149	0309	33631		2681	14636
146	0198	0413	34116		2709	14695
146	0248	0439	34375		2727	14717
146	0298	0443	34485		2735	14729

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0450 B	31824		2524	14647	0000	00000	2741
0010	0452	31799		2522	14649	0028	00001	2763
0020	0451	31798		2522	14650	0055	00006	2763
0030	0451	31793		2521	14652	0083	00013	2767
0050	0154	32227		2581	14532	0133	00033	2198
0075	0071	32627		2618	14505	0184	00065	1845
0100	0144	32915		2637	14545	0228	00104	1670
0125	0229 B	3328 F		2660	14593	0268	00149	1454
0150	0312	33643		2681	14637	0302	00197	1251
0175	0373	33917		2697	14671	0331	00246	1104
0200	0415	34130		2710	14696	0358	00297	0989
0225	0433	34280		2720	14710	0382	00349	0899
0250	0450 C	3440 C		2728	14722	0403	00402	0831
0300	0442	34485		2735	14728	0444	00515	0762

C-REF-NO 004	YR 1968	DEPTH	53	WAVES 1 23X1	AIR T 03.3	VIS 8
CONS. NO 032	MONTH 11	MXSAMPD	00	WAVES 2 28X2	WET B	STN
LAT 48-200N	DAY 22	NO.DPTH	6	WND-DIR 230	WW-CODE 01	
LON 63-100W	HR 18.6	W-COLOR		WND-FCE 02	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP		BARO 1005.0	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
186	0000	044 B	31031		2462	14632
186	0010	0445	30939		2454	14635
186	0020	0463	31071		2463	14646
186	0030	0462	31209		2474	14649
186	0040	0417	31473		2499	14635
186	0050	0164	32365		2591	14539

*TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0440 B	31031		2462	14632	0000	00000	3329
0010	0445	30939		2454	14635	0034	00002	3404
0020	0463	31071		2463	14646	0068	00007	3322
0030	0462	31209		2474	14649	0101	00015	3218
0050	0164	32365		2591	14539	0154	00036	2100

C-REF-NO 004	YR 1968	DEPTH	78	WAVES 1 17X1	AIR T 02.2	VIS 8
CONS. NO 033	MONTH 11	MXSAMPD	01	WAVES 2 17X1	WET 8	STN
LAT 47-500N	DAY 22	NO.DPTH	7	WND-DIR 170	WW-CODE 02	
LON 62-500W	HR 21.8	W-COLOR		WND-FCE 02	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP		BARO 1003.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
218	0000	043 B	31148		2472	14629
218	0010	0431	31107		2469	14631
218	0020	0427	31124		2471	14631
218	0030	0426	31142		2472	14633
218	0040	0416	31259		2482	14632
218	0050	0389	31607		2513	14626
218	0075	0173	32180		2576	14544

#TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0430 B	31148		2472	14629	0000	00000	3231
0010	0431	31107		2469	14631	0033	00002	3264
0020	0427	31124		2471	14631	0065	00007	3248
0030	0426	31142		2472	14633	0098	00015	3234
0050	0389	31607		2513	14626	0159	00040	2850
0075	0173	32180		2576	14544	0223	00080	2246

C-REF-NO 004	YR 1968	DEPTH 60	WAVES 1 11X2	AIR T 02.2	VIS 8
CONS. NO 034	MONTH 11	MXSAMPD 00	WAVES 2 11X2	WET B	STN
LAT 47-100N	DAY 23	NO.DPTH 6	WND-DIR 110	WW-CODE 02	
LON 63-100W	HR 02.6	W-COLOR	WND-FCE 02	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1000.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
026	0000	045 B	31071		2464	14637
026	0010	0444	31029		2461	14635
026	0020	0445	31031		2461	14638
026	0030	0445	31032		2462	14639
026	0040	0405	31314		2488	14628
026	0050	0230	31947		2553	14562

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0450 B	31071		2464	14637	0000	00000	3308
0010	0444	31029		2461	14635	0033	00002	3335
0020	0445	31031		2461	14638	0067	00007	3335
0030	0445	31032		2462	14639	0100	00015	3335
0050	0230	31947		2553	14562	0159	00038	2463

C-REF-NO 004	YR 1968	DEPTH 65	WAVES 1 26X2	AIR T 03.3	VIS
CONS. NO 035	MONTH 11	MXSAMPD 00	WAVES 2 26X2	WET B	STN
LAT 46-450N	DAY 23	NO.DPTH 6	WND-DIR 260	WW-CODE	
LON 62-000W	HR 07.8	W-COLOR	WND-FCE 05	CLD-TPE	
MARSD SQ 151	C/I 1810	W-TRNSP	BARO 1000.0	CLD-AMT	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
078	0000	046 B	30912		2451	14639
078	0010	0469	30879		2447	14644
078	0020	0469	30884		2447	14646
078	0030	0461	30910		2450	14644
078	0040	0450	30931		2453	14642
078	0050	0358	31388		2498	14610

*TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0460 B	30912		2451	14639	0000	00000	3438
0010	0469	30879		2447	14644	0035	00002	3472
0020	0469	30884		2447	14646	0070	00007	3469
0030	0461	30910		2450	14644	0104	00016	3442
0050	0358	31388		2498	14610	0169	00042	2988

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